Preliminary Alternative #20
Corresponding to Alternative Formulation Strategy 1A,2B,3A,4A - Maximum

Primary Conflict	Approach to Resolve Conflict
Fisheries and Diversions (Conflict 1)	**Increase Fish Productivity (1A)** Diversion Modification (1B)
Habitat and Land Use/Flood Protection (Conflict 2)	Preserve Existing Land Use (2A) **Create Additional Habitat Area (2B)**
Water Supply Availability and Beneficial Uses (Conflict 3)	**Reduce Critical Export Area Demands (3A)** Enhance Delta Supplies as Inflows (3B)
Water Quality and Land Use (Conflict 4)	**Managing Quality of Delta Inflow (4A)** Manage Instream/In-Delta Water Quality (4B)
Minimum or **Maximum**	

Solution Overview

This maximum alternative includes compatible objectives of increasing fish populations and increasing the extent of Delta habitat area. Action choices are not limited by the preservation of existing agricultural land uses, but are constrained in that the impacts of remaining agricultural diversions to fish populations are not proactively addressed. By seeking to reduce critical export demands, this alternative may result in additional water available for beneficial Delta purposes, but will not benefit from increased in-watershed supply increases that may dilute and reduce the temperature of Delta waters. By constraining water quality management to the control of source discharges, this alternative precludes the management of instream water quality by treatment, dilution, and other in-water practices.

Actions Selected

Habitat: Improvements in existing habitat quality, and increases in the area of habitat in the Delta would be achieved by the implementation of several actions that would either restore, protect, convert, improve, or increase habitat in the Delta. Nineteen actions serving to restore Delta shallow water (tidal) habitat, riverine habitat, wetland habitat, and terrestrial habitat would be implemented, including but not limited to restoring tidal action in some areas, filling deep water areas, reconstructing banks, levees, and islands, reestablishing old, and establishing new habitat areas, and restoring historic riparian and wetland areas. Integrated habitat management actions, the control of nuisance species, and improved management of Delta waterfowl habitat would further improve the quality and increase habitat area. Better management of agricultural drainage and urban wastewater effluent, groundwater, and flood control channels and levees would be used to improve habitat conditions. Land acquisition programs also could be implemented to directly increase areas protected for beneficial habitat uses.

Populations - Direct benefits to fish populations would be achieved by the coordination of hatchery expansion, improved hatchery operations, reduction of hatchery effects on wild fish populations, improved captive breeding and tagging operations, and increased effectiveness in monitoring and regulation actions included in this alternative.

Increases in fish populations would be achieved indirectly by better management of temperatures and flows in upstream habitats, channel modifications such as restoring channel configurations, shoreline

areas, and spawning gravel beds. Improvements to floodway drainage and passage conditions also would improve fish habitat, and therefore indirectly benefit fish populations.

Water Use - Improvements in Delta hydrologic conditions would be achieved indirectly by several actions intended to reduce export area demands. Improved and expanded desalination programs and practices, increased conservation, reclamation (by agricultural, municipal, and industrial users), and public education would be achieved by several actions included in this alternative. Progressive land and water management practices (e.g. land retirement, fallowing, easement purchases) and incentives (pricing, legal and institutional controls) also would be used to reduce export area demands. Actions calling for the construction of export area on-and off-stream surface water storage facilities, and for increased groundwater recharge and storage could greatly reduce such demands, resulting in increased Delta water levels and outflows.

Water Quality: Water quality increases would be achieved by several actions intended to reduce the quantity of pollutants that enter the Delta system through runoff or groundwater leaching. These actions would seek to reduce agricultural, municipal, and industrial pollutants, either by taking land out of agricultural production, modifying practices that contribute to high pollutant loading, or increasing regulatory controls as disincentives to discharging by these user groups.

Preliminary Assessment

This alternative is characterized by several actions to improve shallow habitat, nearshore areas, levee maintenance practices, and land-based agricultural practices (chemical applications, irrigation scheduling, tillage, etc.) that may adversely affect existing habitat. It's implementation may achieve major improvements in existing Delta habitat, large increases in the areal extent of usable habitat, and substantial increases in water quality that accompany source discharge control programs. Its weaknesses are characterized by its constraints to: reducing diversion impacts; increasing in-watershed supplies; and improving instream water quality. Its implementation could nevertheless achieve substantial improvements in Delta conditions through increases to fish populations, Delta habitat area, and water quality. It would, in all likelihood, fulfill ESA requirements for listed Delta species.

This alternative seeks to achieve major increases in fish populations and Delta habitat through reducing export-area demands as a means of increasing Delta water levels and outflows. It would fall short of achieving benefits unique to those resulting from increased supplies originating in the watershed (e.g. reduced temperatures, flushing flows, etc.) that are often most beneficial to anadramous and estuarine species. It would instead place the full burden of increased levels and outflows on export area users. In the absence of increased supply actions, achievement of Delta fishery, riparian, and wetland population and habitat objectives would most likely be limited by the rapidity with which export area users could implement several demand reduction actions. Furthermore, water quality objectives would need to be achieved solely by actions directed towards reducing discharges at the source, without in-water dilution or treatment actions. Source control programs are difficult to regulate, and would be weakened without an accompanying in-water monitoring and management program.